

Service Manual

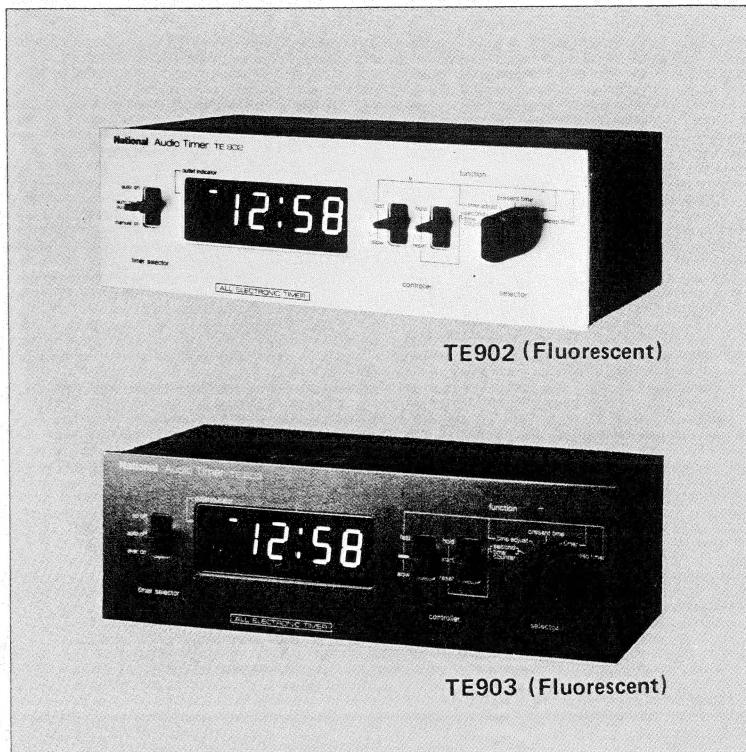
Audio Timer

TE902,903

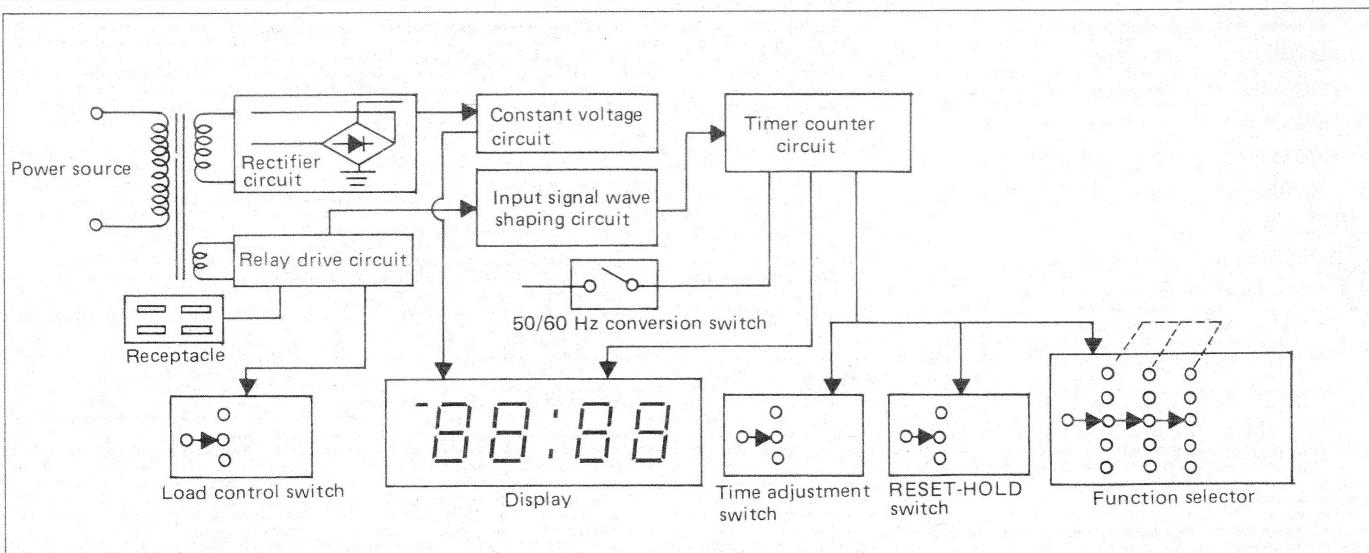
(Fluorescent)

Specification

Power source:	120V AC, 220V AC, 240V AC 50/60 Hz
Power consumption:	8 W
Power capacity:	400 W
Clock accuracy:	Synchronizes with AC power frequency
Timer accuracy:	+0.02 second against preset time
Functions:	Automatic ON Automatic ON and 59 minutes later OFF Sleep timer (1 — 59 minutes) Time counter
Dimensions:	88 x 250 x 137 mm
Weight:	2,080 g



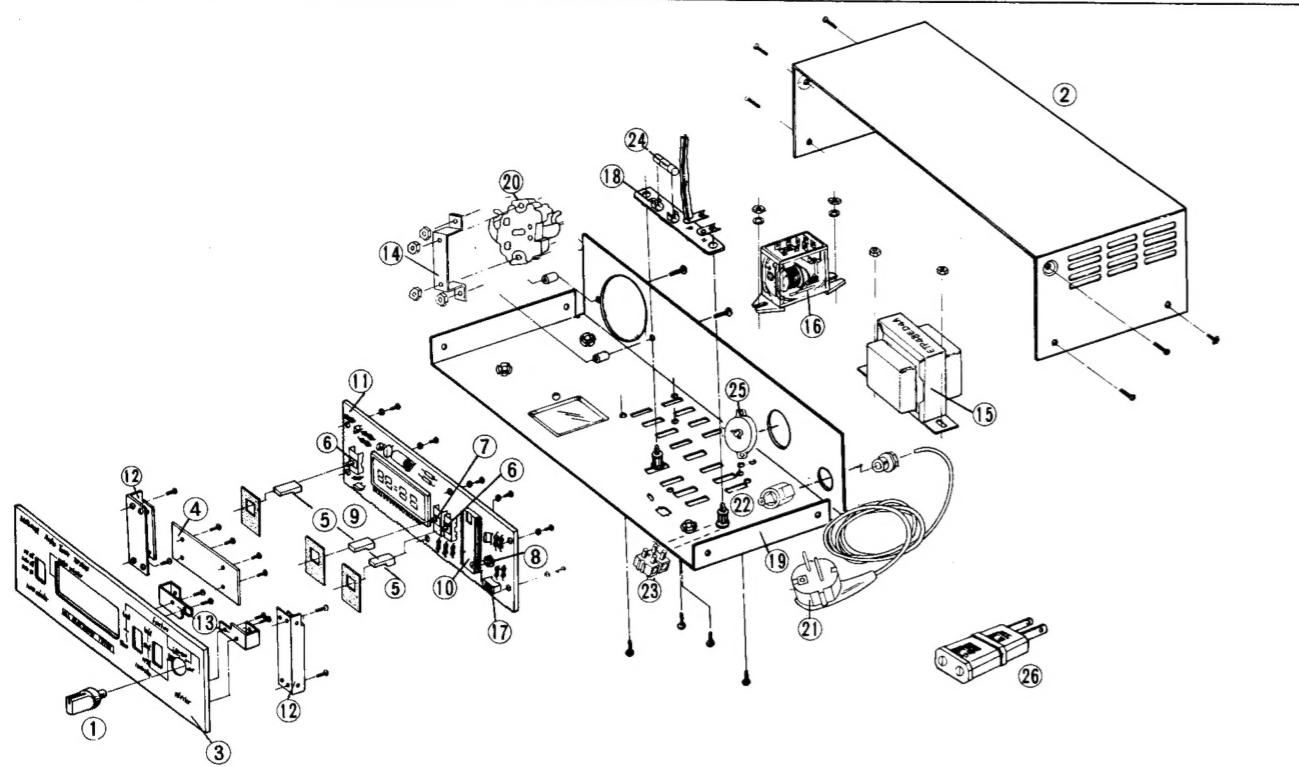
BLOCK DIAGRAM



National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

DISMANTLED VIEW



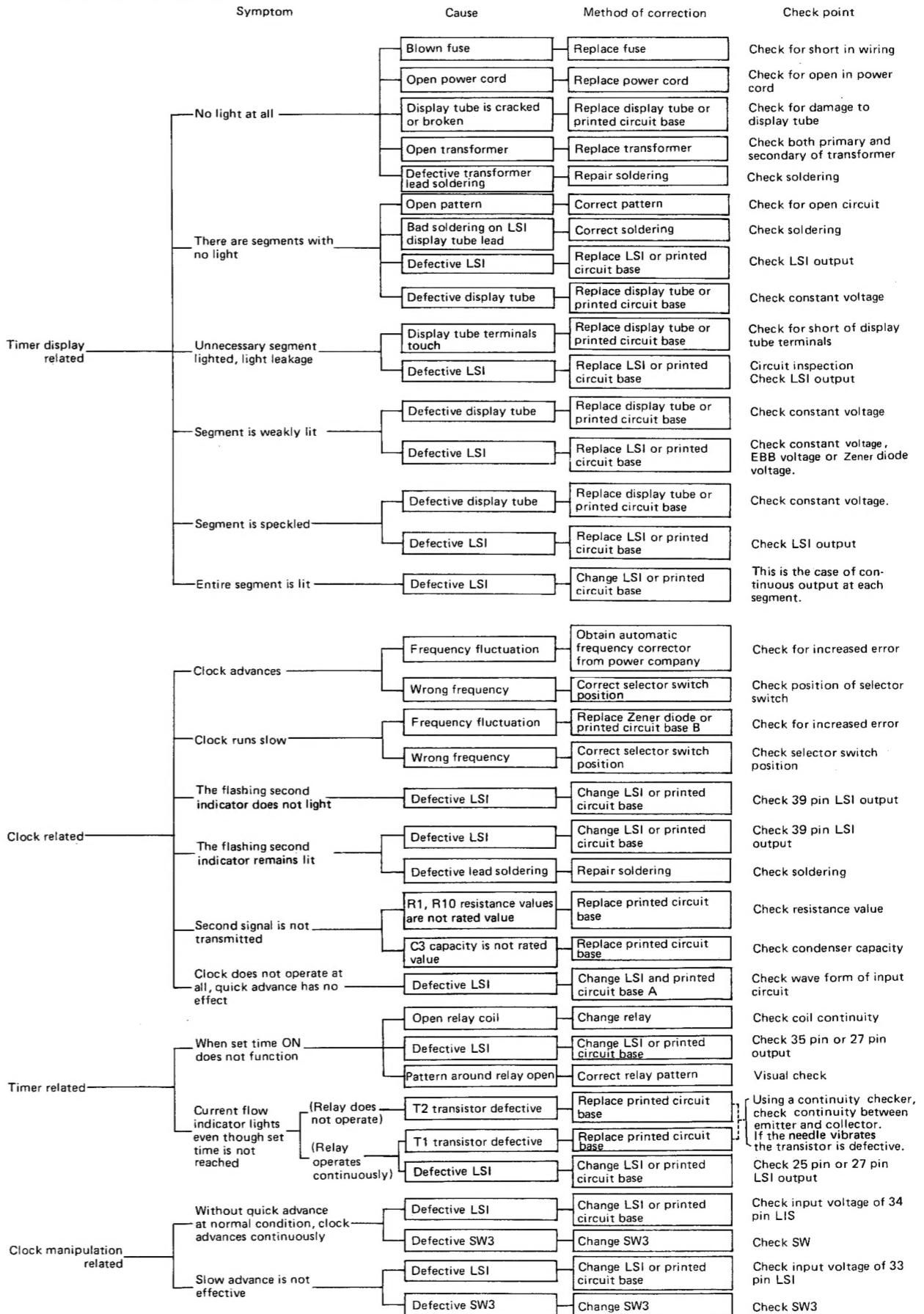
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Per set	
1	TE90303597	Switch knob	1	
2	TE90303087A	Upper case (w/o diagram)	1	
3	TE90303068	Front panel	1	
	TE90203068	Front panel (TE902 only)	1	
4	TE90303108	Display cover	1	
5	TE90303607	Switch lever	3	
6	TE90302597	Lever switch A	2	
7	TE90302607	Lever switch B	1	
8	TE90302617	Rotary switch	1	
9	TE93002367	Display (fluorescent)	1	
10	TE93002377	LSI	1	
11	TE90302107	Printed circuit base	1	
12	TE90300797	Bracket A	2	
13	TE90300807	Bracket B	2	
14	TE90300807A	Bracket C (for C2 receptacle)	1	
	TE90300807B	Bracket D (Denmark only)	1	
15	TE90302231	Transformer A (100 – 110V)	1	
	TE90302231D	Transformer B (120/220/240V)	1	
16	TE90305308	Relay	1	
17	TE90302647	Frequency conversion switch (PX only)	1	
18	TE90302638	Fuse holder base	1	
19	TE90303098	Lower case A (w/receptacle A2 hole)	1	
	TE90303098B	Lower case B (England only)	1	
	TE90303098C	Lower case C (PX only)	1	

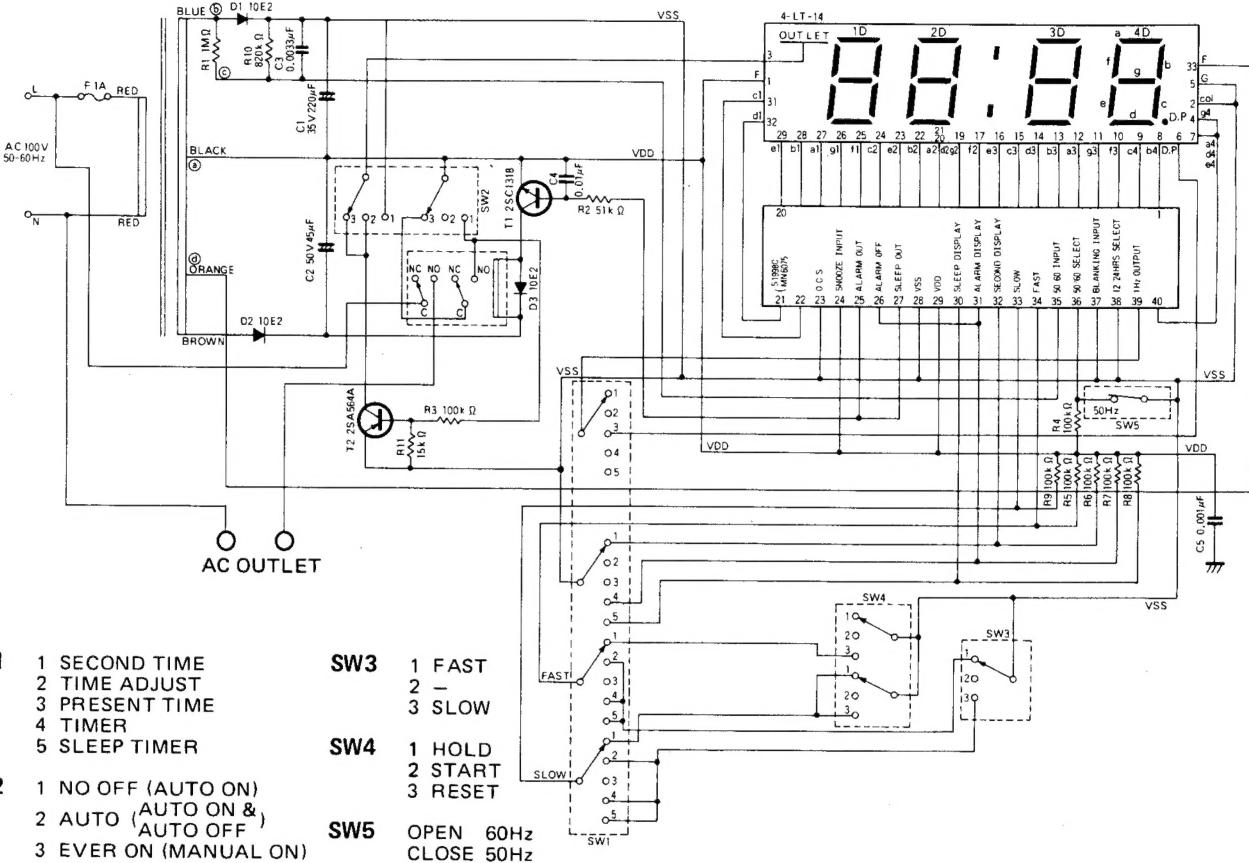
Note: Printed circuit board includes No. 9 and No. 10

TROUBLESHOOTING CHECKLIST

Inspection and maintenance procedure



CIRCUIT DIAGRAM



INSPECTION METHOD

Circuit check measurement wave form

Condition	Test location	Test item	Oscilloscope -- Digital meter		Normal voltage and wave form	Interpretation of measurement and malfunction location
			Probe	Ground		
No segment lighting at all	(A)	(A) Transformer secondary voltage Filament voltage VSS	(Digital meter) d b	(Digital meter) a a	2.9V AC Relay OFF condition 20V DC	No output voltage at VSS • Defective transformer • Defective lead soldering • Open circuit in copper foil pattern
Some segments do not light Segment lighting is weak Segment lighting flickers Timer does not switch power-ON at set time	(B)	(B) LSI output wave form	①~②②	a	Segment (No light condition) Segment (Lighted condition) 	In lighted condition, no output voltage • Defective LSI In lighted condition, LSI has output • Defective display unit • Open relay coil • Open relay circuit pattern • Defective LSI
Improper segment lights Light leakage exists	(B)		②⑦	a	Compare with timer OFF condition wave form Compare with timer ON condition wave form	No light condition with voltage output • Defective LSI No light condition with no voltage output • Defective display unit
Second indicator does not flash Second indicator flashes continuously	(C)	(C) LSI output wave form	③⑨	a	Second indicator not flashing Lighted 	LSI 39 pin output: does it match wave form at left at 1 Hz? With no output, LSI is defective
Second signal is not transmitted Clock does not operate Fast advance does not help	(D)	(D) LSI output wave form	⑤	a	VSS 20V 7.8Vpp GND	The voltage difference between VSS and Vp-p wave forms should not be excessive. When there is no wave form: • Open circuit in copper foil pattern • Defective transformer lead soldering • R1 (resistor) is defective or soldering is defective